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**UNITED STATES DISTRICT COURT  
DISTRICT OF NEW JERSEY**

RAMCO COMMUNICATIONS, INC.,  
individually and on behalf of all those  
similarly situated,

Plaintiff,

v.

MOTOROLA SOLUTIONS, INC.,

Defendants.

Civil Action No.

**COMPLAINT and  
DEMAND FOR JURY TRIAL**

Plaintiff Ramco Communications, Inc. (“Plaintiff”), a corporation organized under the laws of the State of New York, with its principal place of business and headquarters located at 317 Onondaga Ave, Warren, PA 16365, files this civil action pursuant to Sections 1 and 2 of the Sherman Act, Section 4 of the Clayton Act, and Rule 23 of the Federal Rules of Civil Procedure, for damages, costs of suit, injunctive relief and other relief as may be just and proper, on behalf of itself and a class of those similarly situated (“Class” as defined below) against Motorola Solutions, Inc. (“MSI”), for its illegal monopolization of the domestic market for “LMR Solutions,” which includes hardware, software, and integration and maintenance services for two-way land-mobile radio communications.

Based upon personal knowledge, information, belief, and investigation of counsel, Plaintiff specifically alleges as follows.

1. MSI has restricted competition in the sale of the digital hand-held and vehicular radio communications—known in the industry as land-mobile radios (“LMRs”)—to users in government, transportation, business and industry. LMRs are sophisticated digital two-way radios that operate over radio spectrum dedicated to the customer.

2. LMRs are used by what MSI calls mission-critical and business-critical communications customers. MSI’s two-way push-to-talk radios are “specifically tailored to meet the requirements of a mission-critical communications customer base that spans many layers of government, public safety, and first responders, as well as commercial and industrial customers in a number of key verticals.” These are MSI’s “core markets”—the markets MSI has monopolized, in which MSI reaps billions of dollars on sales at supracompetitive prices, in which its potential competitors are substantially foreclosed from competing with superior LMRs.

### **INTRODUCTION**

3. MSI is a monopolist that has leveraged its dominance with government and public safety users to dominate the broader LMR Solutions market. MSI uses that dominance to sell its products at inflated prices and excessive margins. MSI cannot maintain the same high prices in competitive markets outside the United States. MSI’s supracompetitive pricing comes at the expense of U.S. taxpayers, small businesses and consumers who are forced to pay a multiple of what they would pay in a competitive market.

4. MSI has a monopoly over LMR Solutions in all of the domestic markets in which MSI operates. An MSI board member has claimed that MSI controls 75% of LMR sales. MSI’s share of sales to business-critical LMR customers exceeds 80%.

5. MSI's monopoly power is reflected in its supracompetitive pricing. MSI offers not only the most expensive products, but has been able to maintain and raise prices without regard for the prices of competing products. U.S. customers pay a multiple of what customers pay in competitive markets outside the United States for a comparable MSI product because in other countries, MSI faces price competition. It has been reported that MSI charges its customers in the United States more than five times what it charges customers in other countries for certain products that are used for the exact same purpose are otherwise substantially similar.

6. MSI profits in the United States are likewise greater than its profits in more competitive markets. MSI's profit margins on sales to customers in the United States is reported to be 89%, compared to less than 10% for sales to customers in Europe, where MSI faces competition from at least 15 other LMR firms.

7. When faced with competition in the U.S., MSI responds by blocking its competitors' access to the dealers who are critical to making sales to end-users. MSI threatens dealers who want to carry other product lines for their customers. The result is *de facto* exclusive relationships.

8. This exclusivity substantially forecloses competition in several ways. First, MSI uses a point system to induce exclusivity. A dealer that exclusively sells MSI products satisfies one of four factors required to achieve MSI's "platinum" status, qualifying the dealer for important benefits that tie the dealer to MSI. Achieving exclusivity requires no direct investment on a dealer's part. Second, MSI revokes, or threatens to revoke dealers' rights as to Motorola's lucrative service business from dealers who add competing product lines. Third, at a March 2017 industry conference, MSI gathered in one room the largest dealers in the industry and threatened them with retaliation for carrying competing products. Fourth, MSI has since issued a

memorandum specifically threatening the termination of dealers who sell a leading competitor's products.

9. Motorola's conduct generally disadvantages all LMR dealers. MSI's core public safety customers in the United States primarily purchase radios and radio systems that use the Project 25 ("P25") technical standard. Those customers frequently require expensive and ongoing maintenance and service for these systems. That service and maintenance is largely performed by MSI dealers, and is necessary for many LMR dealers to maintain profitability. MSI has used maintenance and service contracts to force dealers to refrain from carrying competing product lines.

10. There is no legitimate, pro-competitive business justification for MSI's actions. Independent dealers, such as Plaintiff, are not legal or financial affiliates of MSI; yet, MSI's *de facto* exclusivity requirements effectively make them so. Dealers must compete with each other—and with MSI—for end-user sales, but may not offer those customers competing products. That is contrary to dealers' independent interests. Faced with competition from other dealers and MSI, dealers require the ability to offer a range of products and services, at a range of prices.

11. MSI also abuses the judicial system and regulatory process in furtherance of its scheme. To that end, MSI filed multiple lawsuits against one of its leading competitors, Hytera, beginning concurrent with its threats to its dealership base in early 2017.<sup>1</sup>

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<sup>1</sup> "Hytera" encompasses Hytera Communications Corporation Ltd., Hytera America, Inc., Hytera Communications America (West), Inc., PowerTrunk, Inc., and Sepura Plc, plaintiffs in an action pending before this Court, who allege claims substantially similar to Plaintiff's claims herein. *See Hytera Comm'n Corp. v. Motorola Solutions, Inc.*, Civil Action No. 17-12445 (D.N.J.) (filed Dec. 4, 2017).

12. MSI filed sham litigation and Federal Communications Commission (“FCC”) complaints and continues to prosecute those actions as an anticompetitive weapon designed to harass Hytera and Hytera resellers. Those actions raise the cost of selling Hytera products and create fear and uncertainty in potential Hytera customers.

13. For example, MSI sued Hytera for purportedly infringing two patents that MSI previously agreed to license on fair, reasonable and non-discriminatory (“FRAND”) terms. MSI’s refusal to consider these patents standard-essential, and subject to a FRAND licensing obligation, and its pursuing litigation reflect MSI’s intent to use the judicial process as an anti-competitive weapon.

14. Instead of competing on price or quality, MSI warns customers to avoid doing business with a competitor it has charged with patent infringement. MSI has also induced dealers to spread false rumors questioning Hytera’s long-term viability based on those complaints, suggesting that the litigation will result in Hytera’s exit from the U.S. market. Those efforts have been effective despite the pendency of the litigation. MSI has discouraged potential dealers and customers from doing business with Hytera while the litigation remains unresolved.

15. The effect of MSI’s scheme on competition is clear. MSI has protected its monopoly in public safety by preventing competition from alternative technology standards with its P25 product line. Digital Mobile Radio (“DMR”) and Terrestrial Trunked Radio (“TETRA”) are used as alternative LMR standards for public safety customers outside the United States. Indeed, Motorola actively sells and promotes DMR and TETRA solutions to public safety customers in other countries. LMR products using the DMR and TETRA standards are also making inroads in the United States and thus pose a threat to MSI’s P25 business. MSI’s monopoly prevents rivals

from taking additional sales and expanding the market with more cost-effective DMR and TETRA products.

16. MSI has fought the adoption of the TETRA standard in the United States, while promoting and selling TETRA products elsewhere, so as to preserve its P25 business and lucrative service contracts. The result is that MSI's competitors are substantially foreclosed from competing for customers. By blocking competition from TETRA, MSI is able to charge supracompetitive prices for its P25 products that are a multiple of what customers pay for TETRA devices in foreign markets.

17. MSI's scheme suppresses competition from products using DMR technology. Many public safety customers, such as those with a small systems, do not need P25 technology. DMR is more than sufficient and significantly more cost-effective for such customers. In addition, the vast majority of private sector customers do not need or want P25 technology. Hytera is MSI's closest competitor for DMR-based sales in the United States. MSI has threatened dealers with termination for carrying Hytera products. MSI has previously done the same to block other rivals' access to dealers, which are the critical point of distribution for customers in the private sector LMR market. Without access to dealers, rivals are foreclosed from this market.

18. End-users are harmed as a result. MSI is no more likely to compete on price for its DMR product than it does on its P25 product. MSI sells its DMR devices at prices well in excess of what Hytera charges for comparable products.

19. Nothing justifies MSI's supracompetitive prices. For example, MSI's XPR 3500 and Hytera's PD562 offer many of the same specifications, but the Hytera product weighs less, has a longer battery life, and comes with a longer warranty. The Hytera model sells for a suggested resale price ("MSRP") of \$440. MSI's model sells for an MSRP of over \$675. A comparison of

other Hytera and MSI products reveals a similar pattern: Hytera sells comparable or superior products for lower prices, while still earning a reasonable return for its dealers.

20. As many MSI customers are first responder emergency personnel, U.S. customers and taxpayers suffer the consequences of this scheme. U.S. buyers pay MSI's monopoly prices and U.S. taxpayers subsidize MSI's monopoly profits.

21. At all times relevant to this action, MSI has held and maintained an unlawful monopoly of the United States market for sales of LMR to public safety and government end users. Rather than compete against Hytera or other market participants, MSI has perpetrated a nearly decade long anticompetitive scheme to protect and maintain its traditional dominance in the U.S. market for sales of digital two-way radio systems to public safety and private sector customers. MSI has leveraged this dominance in the public safety and government markets to achieve dominance in the market for business and industry sales.

22. As a result of MSI's anticompetitive practices, Plaintiff and Class Members seek damages, costs and attorneys' fees pursuant to Sections 1 and 2 of the Sherman Act.

### **JURISDICTION AND VENUE**

23. This action arises under sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1, 2, and section 4 of the Clayton Act, 15 U.S.C. § 15(a), and seeks to recover treble damages, costs of suit, injunctive relief, and reasonable attorneys' fees for the injuries sustained by Plaintiff and members of the Class resulting from MSI's successful efforts to restrain trade in the United States. The Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331, 1337(a), 1407, and 15 U.S.C. § 15.

24. Venue is proper in this District pursuant to 15 U.S.C. §§ 15(a), 22 and 28 U.S.C. §§ 1391(b), (c), and (d) because, during the Class Period, MSI resided, transacted business, was

found, or had agents in this District, and a substantial portion of its activity that affected the interstate trade and commerce discussed below has been carried out in this District.

25. During the Class Period, MSI sold and shipped LMRs and related products in a continuous and uninterrupted flow of interstate commerce, including in this District. MSI's conduct had direct, substantial, and reasonably foreseeable effects on interstate commerce in the United States, including in this District.

26. This Court has *in personam* jurisdiction over MSI because it, either directly or through the ownership and/or control of its subsidiaries, *inter alia*: (a) transacted business throughout the United States, including in this District; (b) participated in the sale and distribution of LMRs and related products and services throughout the United States, including in this District; (c) had and maintained substantial aggregate contacts with the United States as a whole, including in this District; or (d) was engaged in an anti-competitive conduct that was directed at, and had a direct, substantial, reasonably foreseeable and intended effect of causing injury to, the business or property of persons and entities residing in, located in, or doing business throughout the United States, including in this District. MSI also conducts business throughout the United States, including in this District, and has purposefully availed itself of the laws of the United States.

27. By reason of the unlawful conduct alleged herein, MSI substantially affected commerce throughout the United States, causing injury to Plaintiff and members of the Class. MSI, directly and through its agents, engaged in activities affecting all states, to restrict output and fix, raise, maintain and/or stabilize prices in the United States for LMR Solutions, which unreasonably restrained trade and adversely affected the market for LMR Solutions.



28. MSI's unlawful conduct described herein adversely affected persons and entities in the United States who directly purchased LMRs and related products manufactured by MSI, including Plaintiff and the members of the Class.

### **PARTIES**

29. Plaintiff Ramco Communications, Inc. ("Ramco"), is a family-owned LMR Solutions, dealer. Ramco is a New York corporation, with its principal place of business at 317 Onondaga Ave, Warren, PA 16365. Established in 1998, Ramco has purchased LMR Solutions directly from MSI at all relevant times.

30. Defendant MSI is a company organized and existing under the laws of Delaware with its principal place of business at 500 W. Monroe Street, Chicago, Illinois, 60661. MSI imports DMR and P25 two-way radios for sale in the United States. MSI also operates Vertex Standard LMR, a provider of digital and analog two-way radio solutions, including P25 solutions, as a wholly-owned but separately branded subsidiary.

### **CLASS ALLEGATIONS**

31. Plaintiff brings this action on behalf of itself and, pursuant to Federal Rules of Civil Procedure 23(a) and 23(b)(3), as representative of a class (the "Class") defined as follows:

All persons who or entities which purchased LMR Solutions directly from MSI, or any current or former subsidiary or affiliate thereof, or any co-conspirator, in the United States, during the period from and including December 22, 2013, through the present. Excluded from the Class are MSI and its officers, directors, management, employees, subsidiaries, or affiliates, and all governmental entities.

32. The Class Members are so numerous and geographically dispersed that joinder of all members is impracticable.

33. Plaintiff's claims are typical of the claims of the other Class Members. Plaintiff and other Class members have all sustained damage in that, during the Class Period, they purchased

LMR Solutions at artificially maintained, non-competitive prices, established by MSI's actions in connection with the violations alleged herein.

34. Plaintiff will fairly and adequately protect the interests of all Class Members. Plaintiff has purchased LMR Solutions directly from MSI. Plaintiff has retained counsel competent and experienced in class action and antitrust litigation. Plaintiff's interests are coincident with, and not antagonistic to, the interests of the other Class Members.

35. Common questions of law and fact exist with respect to all Class Members and predominate over any questions solely affecting individual members. The common legal and factual questions, which do not vary among Class Members include, but are not limited to, the following:

- a. whether MSI intentionally and unlawfully impaired or impeded competition in the LMR Solutions market;
- b. whether MSI maintained or enhanced monopoly power in the LMR Solutions market;
- c. whether MSI engaged in anticompetitive conduct in order to unlawfully disadvantage its competitors and maintain monopoly power in the LMR Solutions market;
- d. whether MSI had and has monopoly power with respect to LMR Solutions;
- e. whether MSI had procompetitive reasons for its conduct;
- f. the effects of MSI's anticompetitive conduct on LMR Solutions prices;
- g. whether Plaintiff and other members of the Class have been overcharged and thus damaged by paying artificially inflated prices for LMR Solutions as a result of MSI's unlawful conduct; and
- h. the proper measure of damages.

36. A class action is superior to any other method for the fair and efficient adjudication of these issues, as joinder of all members is impracticable. The damages suffered by many Class Members are small in relation to the expense and burden of individual litigation, and therefore, it is highly impractical for such Class Members to individually attempt to redress the wrongful anticompetitive conduct alleged herein.

### **FACTUAL BACKGROUND**

37. LMRs are commonplace across the nation. When first responders—local and state police, fire departments and emergency medical services (“EMS”)—communicate with each other or 911 dispatch centers, they use mission-critical two-way radios. They are routinely used in the operation of public transport, and by security and operational personnel in school districts, warehouses, manufacturing sites, hotels, shopping malls and entertainment venues.

38. LMRs are ubiquitous and unique as compared to other modes of communications because their users can push a single button to instantaneously talk to one another, or broadcast to other users over a dedicated communications network. There are no numbers to dial, no waiting for others to pick up their devices, and no dropped calls.

39. Modern public safety and professional LMR systems provide digital clarity, reduced radio interference, ruggedness, and functionality that is designed for public safety. The systems can be deployed for use at a single location (*e.g.*, hotel, warehouse, sporting event venue) or over a wide geographic area or multi-site location (*e.g.*, office park, campus, industrial site). The radio communications are not broadcast over public channels, but over a private radio network using spectrum licensed from the FCC for that purpose. Because LMR systems use licensed spectrum, as opposed to freely accessible public spectrum, they are sometimes called private mobile radio (“PMR”) systems.

40. In 2015 the LMR market in the United States, including terminal and system sales, was approximately \$5 billion.

### **The Land Mobile Radio System**

41. LMR systems are a collection of digital handheld, vehicular, and stationary radio units designed to communicate voice and data through radio waves at specific frequencies and channels.

42. The typical components of an LMR network may include one or more of the following: a base station, a transmitter tower, a repeater tower, portable radios, and mobile radios generally mounted inside vehicles. Some systems do not include all these elements. For example, some systems do not require a separate transmission tower.

43. In a typical LMR network, a base station is located in a fixed position and the base station (usually a mobile radio connected to a power supply and connected to a fixed outdoor antenna) is often used for communication with any number of handheld radios and mobile radios. Commercial or large public entities often place base stations in dispatch centers to communicate with handheld radios or mobile radios that are part of the fleet.

44. Handheld radios have a more limited transmission range (compared to base stations or mobile radios) because they are battery powered, have lower transmission power and less efficient antennas and are carried by individuals. Mobile radios are often located inside a vehicle such as a police car or a delivery truck. Mobile radios use the vehicle's power supply, which allows for higher power (generally 10 times that of a handheld radio), and a more efficient antenna, which in turn provides for greater transmission range. Within an LMR system, handheld and mobile radios are typically referred to as terminals.

45. Some LMR systems contain repeaters that facilitate long-distance communication by receiving and retransmitting radio signals. Repeaters may be added to expand the geographic area covered or to ensure radio coverage indoors.

46. The most basic LMR systems contain a base station and two handheld units. Complex systems contain multiple repeaters and hundreds of handheld and vehicular units. Such systems may include repeater sites with multiple frequencies, to facilitate a variety of communications within the system.

47. LMR systems often include multiple channels for communicating. A system that can automatically direct voice traffic to an unused or a dedicated channel (rather than requiring users to select a channel) is called a “trunked” system. A trunked system allows one speaker (*e.g.*, a dispatcher) to communicate with another person or a group, and allows others on the network to communicate on a parallel channel without interrupting the other communication. For example, an event coordinator may want to have one channel reserved for catering staff and another channel for security.

### **LMR Technology**

48. LMR systems operate on a variety of standards, and a variety of radio frequencies.

49. **FCC Spectrum.** LMR systems operate on a private network that allows radio units to communicate with each other through a single frequency or through multiple frequencies, depending on the size of the system. The FCC has allocated certain spectrum to be used for public safety and/or business two-way radio communications. For example, the FCC has specified various portions of the spectrum for public safety use: portions of the UHF and VHF spectrums, as well on the 700MHz, 800 MHz, and 900MHz bands.

50. **Analog/Digital.** Analog systems were the dominant form of two-way radio communication until the last decade.

51. Mission-critical public safety and private sector customers in the United States are generally transitioning from analog to digital systems. Digital systems are superior to analog due to the former's substantially greater quality and greater transmission capacity. For much of the industry, analog sales are limited primarily to "replacement sales," such as for the replacement of damaged or lost handsets to customers with installed legacy analog systems.

52. Manufacturers generally seek to convert legacy analog customers to digital, in addition to competing for existing digital customers and new radio customers. MSI, for example, has told its shareholders that its business focus is "leading the ongoing global migration to digital products."

53. **Digital Technologies Used in the United States.** Within the United States, customers have generally used one of two technologies for their mission-critical public safety or business-critical radio communications: P25 and DMR, respectively.

54. In addition, TETRA technology is widely used for public safety outside the United States. However, MSI has effectively blocked TETRA's adoption in the United States (as described herein). As a result, P25 remains the overwhelmingly dominant technology standard for public safety customers in the United States.

55. Public safety customers are increasingly purchasing DMR products. Sales of DMR for public safety remain small relative to P25, but are an option for certain customers.

56. DMR is the dominant technology for private sector customers.

57. In addition dPMR/NXDN is a niche, narrow-band DMR technology that offers DMR customers who have very specific and, typically, limited frequency needs. Because

dPMR/NXDN requires two times the infrastructure, it is much more costly, which further limits its adoption by commercial users.

58. MSI freely shares its view that customer demand is segmented between P25 and TETRA for government and public safety customers on the one hand, and DMR for commercial radio customers on the other.

59. **P25.** P25 is a digital two-way radio communication standard that generally operates between 12.5 kHz and 6.25 kHz bandwidth. P25 is commonly used by governmental public safety and law enforcement agencies in the United States. P25 was developed through the efforts of MSI, in conjunction with the Association of Public Safety Communications Officials (“APCO”) and the National Association of State Telecommunications Directors. The P25 standard was first adopted by the Telecommunications Industry Association (“TIA”) in 1989. P25 equipment must meet the APCO Project 25 standards to be classified as P25-compliant.

60. P25 Phase 1, still the most widely-used type of P25 technology, was designed and optimized for sparsely populated areas of the United States. P25 Phase 1 uses Frequency Division Multiple Access (“FDMA”) technology for channel selection and distribution. FDMA is a hold-over from analog communications, and functions by dividing user channels by frequency; *i.e.*, if users want two channels, they must be allocated two frequencies. Having more users and channels requires more frequency bandwidth, additional infrastructure (repeaters, base stations, and power sources) and a separate spectrum license from the FCC.

61. On information and belief, MSI is one of the primary sponsors and funders of APCO functions, including the annual APCO meeting. MSI spends millions of dollars annually to fund all aspects of the APCO convention, including concessions, education programs, and social events. MSI sponsors APCO certification programs and has been involved in creating and/or

setting APCO certification standards, further tying the public safety industry to MSI. MSI has at all relevant times maintained significant influence with APCO through these contributions.

62. MSI is the dominant supplier of P25 products in the United States. At all times relevant to this Complaint, MSI has maintained a share of at least 70% of sales of new terminals and systems to public safety customers.

63. **TETRA.** TETRA was developed in 1995 by the European Telecommunications Standards Institute (“ETSI”).

64. Like P25, TETRA is primarily used by government agencies and public safety organizations. Purchasers of TETRA two-way radios include military and law enforcement agencies, emergency service providers, and railroads. TETRA is used by public safety customers all over the world.

65. TETRA was designed and optimized for use in densely populated areas. ETSI also uses Time Division Multiple Access (“TDMA”) technology for channel selection and distribution. TDMA allows several users to share the same frequency channel by dividing the signal into different time slots. The users transmit in rapid succession, one after the other, each using its own time slot. This allows multiple stations to share the same transmission medium (*e.g.*, radio frequency channel) while using only a part of its channel capacity. TETRA uses 25 kHz bandwidth, allowing for four 6.25 kHz channels.

66. Prior to 2013, TETRA was not approved by the FCC for use in the United States. As described in more detail below, on information and belief, MSI has engaged in a concerted effort to exclude TETRA from the U.S. market to preserve and protect its monopoly in the market for public safety products in the United States. After overcoming MSI’s efforts to prevent



competition in the public safety market, PowerTrunk was the first company to sell TETRA products in the United States.

67. **DMR.** DMR is a fully public, open standard also developed within ETSI, and is backed by a variety of suppliers, including MSI and Hytera. DMR is a widely accepted standard worldwide. DMR operates within 12.5 kHz bandwidth.

68. The leading suppliers of DMR products to private sector customers in the United States are Hytera and MSI. Since its launch, through the present, MSI has dominated the sale of DMR products in the United States and currently sells more than 80% of new DMR terminals to the market on an annual basis.

69. The DMR standard developed by ETSI encompasses a diverse range of products aimed at the private sector, which requires a cost-effective LMR solution. The most common DMR System is an FCC-licensed system typically using a repeater, with features such as group calling and texting, which are common needs in the private sector. These systems are targeted at users that require efficiency, advanced voice features, and data services. The DMR standard allows DMR to offer trunking capabilities, which allows DMR to be developed and offered as a potential competitor to full, trunked systems, such as TETRA or P25, and as a more cost-effective option for private sector customers.

70. **dPMR/NXDN.** dPMR/NXDN, as explained above, is a niche digital technology within DMR, aimed at customers with specific channel and frequency spectrum needs. dPMR was developed by ETSI in parallel to the DMR standard for the private sector. dPMR is differentiated from DMR, as TETRA was from P25 Phase 1, due to the choice of channel selection protocols. dPMR/NXDN is an FDMA technology, while DMR is a TDMA technology,

meaning the technologies are largely incompatible and cannot function on the same LMR System. (In the United States, this technology is often referred as just NXDN.)

71. dPMR/NXDN competes only for a limited segment because of cost and technological limitations. dPMR/NXDN is a FDMA-based solution that operates on a single, narrow 6.25 kHz band, meaning the principle selling point to customers is that in an area of congested spectrum (*e.g.*, an urban area), a customer can more easily use that narrower spectrum band and operate one channel. However, as with all FDMA implementations, dPMR/NXDN suffers from a comparative lack of scalability (versus DMR, for instance) because adding each additional channel requires significant additional infrastructure in the way of additional repeaters, base stations, power supplies, etc. DMR, in contrast, while initially requiring a broader frequency band (12.5 kHz) can deliver two channels on each infrastructure system (versus one on a dPMR/NXDN system). For customers that are sensitive to fixed infrastructure costs or are in need of easy scalability, DMR is a preferred solution.

72. The providers of dPMR/NXDN products are limited to Kenwood and Icom. Hytera and MSI do not sell dPMR/NXDN products. The primary differentiator between DMR and dPMR/NXDN technologies is that because it uses TDMA technologies, DMR operates better in heavy load, professional settings, while FDMA products like dPMR and NXDN may suffer interference and lack of access.

73. Because of the cost advantage, broader frequency availability, and better reliability of DMR in heavy use scenarios, there is widespread adoption of DMR for commercial use. dPMR/NXDN is not a practical or an economic substitute for DMR. It is therefore impractical to expect customers to consider dPMR/NXDN a viable alternative.

### **Customer Requirements**

74. Use of the above technologies is driven by the key distinguishing characteristics of the customers and their communications requirements. The industry recognizes these differences. MSI and Hytera, for example, each compete in the design and development of LMR terminals and systems, to meet the differing requirements of their diverse customers. The LMR systems and terminals sold to public safety customers have unique characteristics, and are priced differently from systems sold to other customers.

75. Generally, public safety customers are described as purchasing “mission-critical” LMR solutions, a term used by MSI to describe its business to its shareholders and to the public, and a term adopted more broadly by the industry. For example, MSI has described itself to investors and regulators as selling radios “specifically tailored” to meet the requirements of a “mission-critical communications customer base that spans many layers of government, public safety, and first responders, as well as commercial and industrial customers in a number of key verticals.” The industry uses the term “business-critical” to identify the private sector customer who is not a “mission-critical” customer, but expects high quality, sophisticated and more cost-effective LMR solutions. These customers are described more fully below.

76. **Mission-critical LMR Solutions.** By far, the largest customer segment for LMRs in the United States is the “mission-critical” segment. Customers in this segment range from public safety organizations and first responders to certain (mostly larger) utility and transportation customers. Approximately 70% of all LMRs sold in North America are purchased by public safety customers, with an additional 10% purchased by utility and transport customers. This customer segment might include the following:

- *First Responders*: police and sheriff's departments, fire and emergency medical services, ambulances, and disaster recovery agencies.
- *Federal Government Agencies*: federal law enforcement and emergency response entities.
- *Large Public Utility Companies*: electricity, gas, water, and telephone.
- *Local Government Agencies*: municipal office buildings and public works.
- *Public Transit*: municipal or regional transit system, including buses and railways.

77. There are important distinctions within “mission-critical” customers, however. Public safety customers have specific requirements of their LMR systems, with a particular focus on reliability, longevity, scalability, and providing for interoperability among various public safety agencies. The radios must also be safe and functional in extreme environments, such as exposure to fire and submersion in water. Generally, public safety agencies expect these mission-critical communications products to have certain technical functionality, including encryption and redundancy that ensures the availability of their communications systems in all circumstances. The radios require interoperability across systems so that police may communicate, for example, with EMS and public transportation systems in emergencies.

78. A public safety contract will typically be awarded through a public bidding process. Many public safety entities use industry consultants to assist in drafting public bidding materials. These consulting firms often employ individuals with experience in the LMR industry, particularly former employees of MSI.

79. Public utility infrastructure and transportation customers have some of the same requirements of a public safety customer, but are not always in need of the scalability or other

technological solutions (and costs) of a P25 or TETRA system. However, utility and transit customers also have to meet regulatory requirements for public purchasing and ensuring the safety and reliability of their LMR systems, while at the same time controlling costs. In the United States, utility and transport customers have chosen to utilize a range of technologies, including P25, TETRA, and DMR, as appropriate for their specific technological and regulatory needs.

80. In addition to the sale of LMR hardware (handsets and accessories) and systems equipment (base stations, repeaters), providers of LMR solutions to “mission-critical” customers also often enter into critical service agreements with those customers. These services include integration services and management and support services. Integration services involve the integration and optimization of devices into existing networks, as well as handling software additions and upgrades to existing systems. Management and support services include repair, technical support, and hardware maintenance, as well as software related services, including network monitoring and cybersecurity issues. Due to the need for consistent uptime and reliable service, these service contracts are considered necessary and important parts of servicing the needs of any public safety customer.

81. **Business-critical LMR Solutions.** Sophisticated private sector customers ranging from the hospitality industry to the delivery service industry are also significant users of two-way radios. Approximately 20% of LMRs sold in North America are sold to the private sector. For these customers the products at issue in this Complaint are critical to their business operations and they are, thus, referred to by MSI and others in the industry as “business-critical” or “operations critical” two-way professional radios. Examples of private sector customers might include the following:

- *Construction Companies and Contractors:* Commercial and residential builders; electrical excavating, plumbing and roofing companies.
- *Hospitality Industry:* Casinos, hotels, resorts, tour companies.
- *Private Security:* On-site security personnel, private home security.
- *Schools:* From grade schools to universities, schools provide two-way radios to teachers and administrative staff.
- *Service Industry:* Delivery companies, towing companies, landscaping companies, janitorial and building maintenances staff.
- *Transportation Companies:* Taxis, limousines, buses, and semi-trailer trucks.

82. Customers for “business-critical” LMR solutions include a wide range of potential implementations, such as warehousing and distribution centers, large retail operations (*e.g.*, a “big box” store), hotels and other large-scale hospitality providers, schools, and sports venues, among others.

83. The defining characteristic of private sector customers is their need for a more cost-optimized LMR solution compared to the technologies typically considered by public safety customers. In many cases, the redundancy, security, and interoperability capabilities of a technology like P25 may not be necessary for many such customers. In the United States, the business and industry segment of customers has primarily adopted DMR as the standard cost-efficient option.

### **MSI’s EXCLUSIONARY CONDUCT**

84. MSI has engaged in a multi-faceted scheme to substantially foreclose competition in the United States. MSI’s anti-competitive conduct includes, but is not limited to, the following:

- **Exclusive Dealing** – MSI engages in *de facto* exclusive dealing with independent distributors through a potent “carrot and stick” combination of incentives for exclusivity and threats of termination for those who seek to promote competing products. This defeats the independence of the dealer and creates *de facto* exclusivity.
- **Tying/Leveraging** – MSI ties lucrative P25 maintenance contracts for the public safety market to a dealer’s exclusively purchasing and reselling MSI’s DMR product. This strategy leverages MSI’s monopoly of public sector business to stifle competition in the more price-sensitive private sector. Again, this anticompetitive conduct gives the independent dealer no effective choice but to not carry Hytera’s competing DMR product for fear of losing access to MSI’s P25 service business, which MSI dominates in the United States.
- **Serial Abuse of Regulatory and Judicial Proceedings** – MSI repeatedly and without regard to legal merit abuses regulatory and judicial systems to block, delay, and raise the cost of competition. MSI has engaged in repeated, serial sham activity before U.S. courts, U.S. agencies, and state bodies, together with serial litigation outside the United States, to raise Hytera’s costs. This serial abuse is the foundation of a misinformation campaign to destroy Hytera’s reputation with customers in the United States. MSI’s actions are individually and collectively baseless and brought with the objective of abusing the process and not for legitimate relief.
- **Abuse of the Standard Setting Process** – MSI’s participation in standard setting itself raises significant antitrust issues. In the case of DMR standards,

these concerns could only be overcome by MSI's commitment to license any intellectual property claims it has over the DMR standard on FRAND terms. MSI has not done this. Instead, once it caused industry competitors and users to adopt MSI-promoted industry standards, MSI then engaged in licensing at unreasonable and discriminatory royalty terms to raise its rivals' costs and deter competition.

85. MSI's acts are designed to and have the effect of, eliminating effective competition for mission-critical radios sold to public safety customers and for business-critical professional radios sold to the private sector. This conduct results in less choice and higher costs for customers, destroys competition.

#### **Exclusive Dealing**

86. In 2011, MSI implemented a program, under a new name, to entice independent dealers to resell and distribute MSI products in three different MSI business segments, including the radio, wireless, and enterprise solutions business segments. Renamed as the "PartnerEmpower Program," MSI's contractual relationship with independent dealers uses a system to award points to dealers based on their success in reaching metrics. A dealer's success in MSI's scheme is contingent on the dealer's compliance with revenue thresholds, technical and sales training, percentage of MSI sales quotas obtained, commitment to the MSI brand and other criteria – notably exclusivity criteria – set by MSI.

87. Within each of the individual business segments (either in a particular technology or vertical market), PartnerEmpower dealers could be classified as "Authorized," "Specialist," or "Elite" based on the total points achieved in the criteria described above. In addition to these three classifications, a dealer could also attain a program level designation, which rewards



dealers based on their performance across the variety of MSI business segments referenced above. The program level designations are “Silver,” “Gold,” and “Platinum,” with the Platinum level offering the most benefits for the dealer—or the channel partner, as MSI commonly refers to its dealers. The individual segment designations generally correspond to the program level designations, and thus Elite dealers are often Platinum dealers. While each program level receives certain benefits, Platinum and Elite partners are granted exclusive access to additional compensation benefits such as an annual rebate program, which can provide up to 2% in rebates to dealers. Platinum and Elite partners also receive more payouts from MSI’s Marketing Development Fund, which provides cash and other financial incentives for dealers to market MSI products. On information and belief, the dealers who generated the most MSI business received the most marketing funds. MSI also ensures that dealers who are close to finalizing deals with purchasers receive additional marketing funds.

88. The primary effect of MSI’s PartnerEmpower program agreements with its dealers is to incentivize dealers to only sell MSI products. The PartnerEmpower program mixes product exclusivity, which is within the dealer’s ability to control, and overall volume, which may not be entirely under the control of a dealer. For instance, a dealer’s overall sales volume may depend on a number of factors, including the dealers own efforts and sales tactics, but also the vagaries of customer demand and also competition with other MSI dealers (or with MSI itself) that may also be chasing the same business. By contrast, a dealer can agree to be exclusive to MSI, and thereby materially improve its ability to get the benefits of being a Platinum Dealer. MSI’s benefits are scaled to realize MSI sales exclusivity. Dealers that carry MSI products rely on these benefits in order to attract customers, remain competitive with other MSI dealers, and maintain profitability.

89. **2017 IWCE Meeting of MSI Dealers.** The “stick” in MSI’s *de facto* exclusivity scheme is its threat to punish, including by way of termination any independent dealer that seeks to offer competitive products, *i.e.*, act as an independent dealer. The threat was widely communicated to independent dealers in March 2017 at the International Wireless Communications Expo (“IWCE”) in Las Vegas, Nevada.

90. MSI held its 2017 Channel Partner Expo, a meeting of MSI dealers, at the same time as the 2017 IWCE in Las Vegas. At this meeting, MSI’s campaign to enforce its policy of exclusive relationships with dealers accelerated.

91. The IWCE is the premier trade show for the mobile radio industry and is organized annually. Representatives from across the industry attend IWCE, including representatives of all major manufacturers, as well as many dealers from around the country.

92. On information and belief, MSI held a meeting at the 2017 IWCE/Channel Partner Expo with independent dealers from across the United States. This dealer-only meeting was notable for its focus on Hytera. MSI CEO Greg Brown gave a speech to dealers from across the country indicating that MSI was upset about the competition from Hytera in the United States. These official comments and other MSI statements were orchestrated at IWCE and later with the goal of threatening the cancellation of dealerships for selling competing Hytera product lines. This was understood in the industry to be a threat to coerce independent dealers into *de facto* exclusivity with MSI.

93. **Subsequent 2017 Threat to Terminate Non-Exclusive Dealers.** On information and belief, MSI sent in the summer of 2017 a written memorandum to dealers in the United States threatening dealers with termination of their dealership with MSI if they carry competing Hytera product lines.

94. By means of these letters, threats, and the resulting dealer fear induced by this conduct, MSI hopes to enforce a *de facto* scheme of exclusive dealerships within the Relevant Markets.

95. **Impact on Dealer Competition.** MSI's publicly stated policy of threatened termination of dealers selling products of a competitor has been given effect across the country in the last year. MSI's ongoing policy has had the effect of excluding Hytera from competing for many current MSI dealers. The largest dealers operate in and across the United States and have access to a range of customers across all customer categories. This can be seen in a simple internet search for two-way radios – all of the major dealers advertise locally via the Internet and their websites exclusively market MSI.

96. These larger dealers are necessary and the most efficient agents to bidding on projects in the United States. These dealers in particular are subject to and restricted by MSI's exclusive dealing, leveraging, and threats to terminate dealers if they choose to deal with Hytera. On information and belief, because of the anticompetitive acts of MSI, many of these large dealers act exclusively for MSI. Indeed, Hytera has lost or has been forced to forego numerous business propositions with these larger dealers as a result of MSI's conduct threatening independent dealers to not deal with Hytera.

97. In addition to the largest dealers, MSI also has taken actions against the smaller independent dealers to prevent entry of competing manufacturers, including Hytera.

98. For instance, a current MSI dealer in Vermont was initially receptive to Hytera's outreach to discuss the dealer carrying Hytera products. On information and belief, MSI responded to this outreach by threatening to terminate the dealer's ongoing servicing and other

business. MSI's threat led that dealer to terminate discussions with Hytera, preventing Hytera from entering into any arrangement with the dealer.

99. Similarly, a representative of a South Carolina dealer informed Hytera that they were terminated by MSI as a service and maintenance partner and that the dealer believes that this action was taken, at least in part, as retaliation for the South Carolina dealer's decision to sell Hytera products. The South Carolina dealer expects the next step may be that MSI will terminate their dealership relationship entirely because they were told by an MSI representative that MSI did not like the fact that the dealer was selling other manufacturers' products, especially Hytera products. On information and belief, the South Carolina dealer understands that other MSI dealers have similarly been threatened with having their service partnership terminated if they chose to continue selling Hytera products.

100. As an additional example, a former MSI dealer in New York, was terminated as an MSI dealership because it chose to also sell Hytera products. Subsequent to its termination, this New York dealer informed Hytera that it learned that other MSI dealers that sold Hytera products had also been terminated. Those dealers were given the same reasoning as the New York dealer had been given: MSI was terminating its relationships with smaller dealers due to a change in market strategy. However, this statement was false and pre-textual: the New York dealer knows of other MSI dealers with a smaller volume of MSI products sold that were not terminated. The difference is that the New York dealer Hytera spoke to also decided to sell Hytera products.

101. A large dealer in California withdrew from negotiations to sell Hytera products and ceased communications with Hytera after the IWCE Conference in March 2017. Prior to the IWCE Conference, the owner of the dealership had met with Hytera multiple times and

expressed interest in carrying and selling Hytera products. At the time of Hytera's preliminary discussions with the dealer, Hytera learned that the dealer was almost exclusively selling MSI products, but the dealer expressed interest in switching to Hytera to replace his MSI Vertex LMR business. After the threats MSI made at the IWCE, the dealer renounced any ties to Hytera and stopped returning Hytera's calls and emails.

102. Yet another dealer operating in California sought to add Hytera product in addition to MSI products that it already sold. When it did so, MSI terminated the dealer. Not content with terminating the dealer, MSI made the termination very public so as to magnify the effect – the termination served as a very public reminder to other dealers to not cross MSI and add a competing product line.

103. Another dealer in Colorado was threatened with withdrawal of all of MSI's Vertex Standard products because the dealer was also carrying Hytera products. On information and belief, MSI's Vertex Standard distributor told the dealer that if the dealer wanted to continue to do business with the distributor, the dealer could not advertise Hytera or the distributor would withdraw its sales to the dealer.

104. Further, MSI intimidated a Dallas area dealer of Hytera and MSI products into terminating its relationship with Hytera as an authorized repair center. The dealer is still a Hytera dealer, but it was asked by MSI representatives to terminate the service center relationship with Hytera in order to maintain its MSI distribution business, and the Dallas-area dealer did in fact terminate its service center relationship with Hytera as a result of this threat. In addition, that same dealer has been influenced not to advertise its relationship with Hytera or its sales of Hytera products.

105. MSI's retaliation is not limited to occasions when dealers carry or sell only Hytera products. For instance, based on a discussion with a former MSI dealer in Atlanta, Georgia, Plaintiff understands that MSI terminated this dealer purportedly because MSI no longer felt they had a good partnership, even though the former dealer was meeting MSI's sales numbers. MSI terminated the dealer around the time that the Atlanta-area dealer won a bid using Kenwood products in competition with another MSI dealer. The former MSI dealer understands that MSI terminated its dealership because the dealer also sells Kenwood products and was winning bids against MSI dealers.

106. Similarly, on information and belief, an MSI dealer in Western Massachusetts lost its manufacturer's representative status, and thus its ability to provide service and maintenance to public safety customers, because the dealer was selling Kenwood products.

107. Plaintiff is aware of another large MSI dealer in the New York area that informed Hytera that it received MSI correspondence threatening parts of the dealership if the dealer were to sell products made by Harris, another MSI competitor.

108. On information and belief, a large MSI dealer located in New Jersey and New York, tried to sell Icom products to a New York housing authority and was punished by MSI for doing so. In that instance, MSI pulled service contracts estimated to range from hundreds of thousands of dollars to \$1 million a year as punishment for selling the Icom product. A representative from this New Jersey-New York dealer informed Hytera that MSI uses its public safety related business, particularly the revenue streams from the public safety service and maintenance contracts that a dealer receives as an MSI Manufacturer's Representative as leverage over its dealers.

109. On information and belief, these terminations become public knowledge because MSI publicizes the dealership terminations by word of mouth and directs its other dealers' to actively target the former dealers' customer accounts. In so doing, MSI seeks to enforce its anticompetitive efforts to maintain *de facto* exclusivity over any independent dealers that choose to carry MSI products, with the goal of foreclosing competition from competing suppliers such as Hytera.

### **Leveraging of Public Sector Dominance**

110. **MSI's Public Safety Dominance in the United States.** The public safety sector, including emergency services, military, police, etc. is the largest sector of the LMR industry in the United States. As described above, the public safety sector is largely dominated by standardized technologies, with APCO's P25 being the dominant standard in the United States (with MSI the dominant supplier).

111. On information and belief, the annual market for new hardware in public safety contracts in the United States is approximately \$2 billion and, on information and belief, MSI has more than a 70% share of these sales of the terminals and systems used in the public safety sector. More importantly, MSI is the dominant provider of maintenance and service to public safety customers for their installed base of P25 systems.

112. **MSI's Actions to Maintain Public Sector Dominance: Exclusion of TETRA.** MSI has monopolized the U.S. public safety market. This effort protects MSI's position in not only public safety products but also in other markets where it competes. MSI relies on its dominance in the U.S. public safety sector to exert pressure on and demand exclusivity from its dealer channel partners in the United States.

113. As described above, TETRA is a leading LMR standard used by public safety users, and is the primary standard used outside of the United States. TETRA directly competes with APCO's P25 standard, a technology advocated and dominated by MSI, which is the predominant standard used by the public safety sector in the United States.

114. In order to protect its dominant position in the public safety sector, from 2009 through at least 2016, MSI engaged in a coordinated scheme to retard the growth of TETRA in the United States. Initially, MSI acted to control and influence relevant trade associations and industry bodies in order to prevent the approval of TETRA by the FCC (despite MSI itself being an advocate of TETRA outside the United States). After TETRA was eventually approved for sale in the United States, MSI continued this scheme by challenging and protesting the award of any contracts to TETRA providers in an attempt to limit the availability of TETRA products in the United States.

115. MSI's scheme included continuous opposition to the acceptance of TETRA by the FCC, including opposition to the TETRA Association's initial request for a technical waiver from the FCC for TETRA technologies to operate within the United States. MSI engaged in this opposition, and coordinated the opposition of APCO and TIA, even as MSI is itself a major supplier and developer of TETRA products outside the United States. MSI opposed the adoption of TETRA in order to preserve its existing dominance in the market for mission-critical radios sold to public safety, transportation, and utility customers.

116. MSI's opposition to TETRA in the United States has been acknowledged throughout the industry. For example, Urgent Communications, an industry publication, reported that MSI "holds the cards in terms of how the technology gets introduced into the U.S." Given TETRA's global success, sophisticated technology setting, and interoperable open platform, introducing



new technologies with much more data communications capacity such as TETRA would have significantly impacted MSI's existing business presence and market share in public safety, utilities, militaries, and transportation companies.

117. PowerTrunk has sought to overcome MSI's opposition and sell its TETRA equipment and technology in the U.S. market. PowerTrunk's efforts, however, have only resulted in increased MSI efforts to squelch TETRA-based competition.

118. For example, on March 14, 2012, the New Jersey Transit Authority awarded Alcatel-Lucent a contract for bus radios, using PowerTrunk as a subcontractor for the radios. This was the first major TETRA win in the United States. After this award, MSI petitioned the FCC to repeal its order authorizing TETRA's operation in the United States. The FCC rejected that petition.

119. Despite MSI's attempts to thwart PowerTrunk's progress, on April 15, 2013, PowerTrunk obtained its first FCC certificate for TETRA equipment in the 700 MHz public safety spectrum. This equipment effectively mooted MSI's purported interoperability objections before the FCC, as it allowed the same device to switch between TETRA and P25 operability. This multimode equipment was developed uniquely for the U.S. market, at significant research and development cost to PowerTrunk.

120. MSI continued to oppose PowerTrunk's TETRA-based entry into the United States and PowerTrunk, in turn, persisted in competing in the face of MSI's continued opposition. PowerTrunk won its largest contract on February 22, 2016, when the New York City MTA Bus Committee awarded Parsons Transportation Group of New York, Inc. and PowerTrunk (as a subcontractor) the contract for a new radio system. Despite its years-long campaign against TETRA, MSI itself submitted a bid to the NYC MTA that provided for a TETRA solution,

which is not surprising since MSI has supplied TETRA systems and subscriber equipment to the British police and the London Underground at a fraction of the price of P25 radios in the U.S. However, the NYC MTA rejected MSI's proposal because it lacked essential information and had significant weaknesses, including the lack of FCC type acceptance certificates for its proposed subscriber equipment (a mandatory RFP requirement by award time). MSI attempted to rely on the dual-band (TETRA/P25 interoperable) technology that it had spent years criticizing but had not yet fully developed. MSI lost and yet continued to petition to overturn that loss without any legitimate basis.

121. As described above, through repetitive and contradictory petitioning, MSI has consistently used its power to stall and distort PowerTrunk's efforts to bring TETRA to the United States. This has had the effect of maintaining and expanding MSI's dominance of the sale of LMRs to mission-critical customers – public safety, transportation, and utility customers.

**MSI's Use of Public Sector Service Contracts to Require Exclusivity from Dealers.**

122. When a dealer becomes an official Manufacturer's Representative for MSI, the dealer receives a percentage of all MSI sales in the region in which they operate (not merely a percentage of store sales). Manufacturer's Representatives for MSI are given exclusive responsibility for public sector accounts. MSI Manufacturer's Representatives agree to register business opportunities with MSI, thereby effectively allowing MSI to redirect certain opportunities or business to other dealers at MSI's discretion.

123. Dealers receive significant incentives from being a Manufacturer's Representative. The most profitable element of this relationship comes from fulfilling the service and maintenance contracts for public safety, emergency responder, and some utility customers for MSI's products, and not necessarily the commission. Many MSI dealers rely on this consistent

service/maintenance income to support their businesses. For instance, take the example of a county sheriff's office purchasing an MSI P25 system. This system might include \$100,000 worth of equipment. The MSI Manufacturer's Representative would only receive approximately 5-6% or \$5,000-\$6,000 in commission on that system. However, the public sector customer is also likely to pay MSI \$100,000 per year to maintain that system, and MSI would in turn pay the manufacturer's representative \$50,000 per year to do the maintenance. The share of sales and maintenance contracts provided to MSI dealers, on a continuing basis, is a substantial value to MSI dealers.

124. If an MSI Manufacturer's Representative chooses to carry competing products, MSI has the ability to, and does in fact, re-assign these lucrative service accounts away from dealers that choose to carry competing products. On information and belief, MSI has threatened numerous dealers with termination of their Manufacturer's Representative status if they chose to carry competing Hytera products.

125. Most importantly, MSI is able to leverage these relationships with dealers to prevent dealers from selling competing products for any purpose, whether it is to public safety customers, private utilities, or commercial customers.

### **Serial Sham Litigation and Petitioning**

126. MSI has engaged in a series of legal proceedings against Hytera in the United States and around the world, primarily to raise Hytera's cost of doing business. MSI's litigation strategy has included the serial filing of claims in the United States, both in federal court and before the International Trade Commission ("ITC"), as well as before various courts in Australia and Germany. MSI has filed no fewer than six separate litigations against Hytera and its subsidiaries since March 2017, using the mere existence of the pending litigation to defame Hytera's

products and business prospects in the United States. Hytera also believes that MSI has filed a series of sham petitions with the FCC and the NYC MTA with the objective of undermining Hytera and its subsidiary PowerTrunk, in order to improperly limit competition from Hytera generally and, more specifically, limit the penetration of TETRA technologies in the United States.

127. In an industry defined by mission-criticality and business-criticality, an LMR vendor's reputation takes on heightened importance and is a barrier to entry and expansion. Baseless allegations that call into doubt an LMR vendor's regulatory compliance, product quality, and continuity of service serve no purpose other than dampening legitimate competition. The following chronology illustrates MSI's efforts to that end. The biggest event of the year for the industry in the United States is the annual IWCE trade show, held this year in Las Vegas. LMR vendors use the IWCE event to garner attention for their companies and products. Most product launches occur at the IWCE. In March 2017, MSI instead used the IWCE event to attack the reputation of Hytera and sow fear, uncertainty, and doubt as to the viability of Hytera and its products. In conjunction with MSI's CEO statements and other contemporaneous MSI statements threatening to penalize or terminate dealers that also carry Hytera, MSI launched a series of actions designed to undermine Hytera's reputation and to further undermine and threaten Hytera dealers.

128. The 2017 IWCE event ran from March 27 through March 31. Two weeks before, MSI filed two separate actions, a trade secret theft complaint and a patent infringement complaint. Then as if that was not enough to generate attention, MSI launched a second patent infringement case smack in the middle of IWCE on March 29. Then, not content with the publicity generated from those actions, MSI continued its campaign and launched patent litigation in multiple

foreign venues between April and July. Throughout this timeframe, MSI has been using the litigations as a sales weapon. On information and belief, at IWCE Las Vegas and since then, MSI has used the fact that it has sued Hytera as an anticompetitive weapon, telling dealers and customers, for example, that Hytera will exit the United States market within a year, and will not be able to serve customers as a result of its litigation tactics. MSI's baseless claims have no legitimate purpose; MSI's purpose is instead to spread disinformation in the market.

129. MSI's current serial sham conduct is an anticompetitive weapon that MSI has used for years. The following are recent examples known to Hytera.

130. **March 2016 - FCC Submission Regarding Award of Contract by New York City Metro Transit Authority.** In March 2016, just days after the NYC MTA Bus Radio system contract was awarded to Parsons/PowerTrunk, MSI submitted a Petition for Clarification to the FCC. In the March 2016 Petition, MSI took the position that any product to be approved by the FCC for use on the 700 MHz public safety channels must be technically capable of operating on P25 channels before its approval by the FCC (*i.e.*, not just being modifiable to operate on P25 channels). This position was directly in opposition to MSI's position taken two years previously in a comment to the FCC, when MSI took the position that requiring technical compliance with P25 protocols prior to FCC equipment authorization would be "too burdensome" to the industry. MSI's changed position, taken only after the award of a large TETRA contract, is indicative of MSI's intent to delay the advancement of TETRA in the United States, and to drive up the costs and requirements of bringing lower-cost TETRA solutions to U.S. customers.

131. **March 2016 – MSI Protest to New York City Metro Transit Authority.** After the award of the NYC MTA Bus Radio system contract, MSI also submitted a misleading and inaccurate protest to the NYC MTA. Highlighting MSI's tactics was its claim in the protest that

the TETRA solution offered by Parsons/PowerTrunk was not approved to operate in the 700 MHz band used by the NYC MTA, despite MSI itself having offered a TETRA-based solution in response to the RFP. Among other inaccuracies, MSI also incorrectly claimed that the TETRA radios offered by PowerTrunk were not interoperable with P25 radios, despite PowerTrunk having specifically developed an interoperable dual-band product for the U.S. market. The MTA ultimately rejected each of these claims as unfounded. The NYC MTA's complete denial of MSI's protest highlights MSI's purpose of delay and inflicting cost on PowerTrunk in an attempt to delay the implementation of the TETRA solution chosen by the NYC MTA.

132. **March 2017 – Northern District of Illinois Trade Secret Litigation.** (*MSI Solutions, Inc. et al. v. Hytera Communications Corporation Ltd. et al.*, Case No. 1:17-cv-01973 (N.D. Ill. Mar. 14, 2017)). In considering Hytera's motion to dismiss MSI's complaint, the Court found that "[MSI]'s claims appear to be untimely based upon the representations made by Defendants." On November 27, 2017, Hytera filed a motion for summary judgment before Judge Samuel Der-Yeghiayan of the Northern District of Illinois showing that MSI's claims are time-barred, and that MSI knew they were time-barred at the time they were brought.

133. **March 2017 – Northern District of Illinois Patent Infringement Litigation.** (*MSI Solutions, Inc. v. Hytera Communications Corporation Ltd. et al.*, Case No. 1:17-cv-01972 (N.D. Ill. Mar. 14, 2017)). This complaint, asserting claims for infringement of the same patents at issue in the ITC proceedings, is currently stayed until at least February 7, 2018, pending outcome of the ITC litigation described below.

134. **March 2017 – ITC Investigation of Certain Two-Way Radio Equipment and Systems, Related Software and Components Thereof.** MSI filed a Complaint with the ITC on March 29, 2017, and the Commission voted to proceed with the investigation approximately one

month later. The products at issue in the investigation are generally Hytera's LMRs and related support devices. MSI claims a violation of Section 337 of the Tariff Act of 1930, as amended, in the importation into the United States and requests that the ITC issue a limited exclusion order and cease and desist orders, which, if granted, would prohibit Hytera from importing the accused products into the United States. The patents asserted in the ITC proceeding are the same as those asserted in the N.D. Ill. Patent Infringement Litigation, including the '869 and '991 patents, which are standard essential patents. MSI, as a participant in collective industry standard setting, committed to license these patents and has instead used the patents as a weapon to try to block Hytera's DMR product. MSI's violation of its standard setting obligation is described in greater detail below.

135. **March 2017 – FCC Certification Raid.** Hytera believes MSI induced additional conduct at the IWCE in an attempt to sabotage Hytera's access to customers and dealers. For an event like the IWCE where product demos will be given, manufacturers like Hytera will apply to the FCC to obtain a temporary frequency in order to demonstrate technology at the show. At the 2017 IWCE, the FCC came to investigate Hytera's booth, a distraction and disruption during this key industry event, with harm to Hytera. The FCC investigation was targeted; Hytera understands that the FCC only visited Hytera's booth at the show acting on a specific – and unfounded – allegation that Hytera was operating unlicensed radios. The FCC concluded there was no violation: the Hytera products were licensed. This coincided with the highly choreographed MSI actions during IWCE to target Hytera as described above. Hytera expects that discovery will confirm that MSI was the source of the FCC raid. Hytera is unaware of any other similar FCC raid on another vendor.

136. **April 2017 – Patent Infringement Litigation in Regional Court of Düsseldorf, Germany.** MSI has engaged in a series of litigations in Germany, the first of which was filed shortly after the beginning of the U.S. patent proceedings. MSI filed this litigation for the purpose of abuse and to inflict additional cost on Hytera in order to defend this matter in a third jurisdiction, without any regard to the merit of the litigation itself. In particular, the patent asserted in this litigation by MSI is the European registration of the '991 patent, the same patent asserted in the ITC Proceeding and the Australian proceeding described below. MSI chose neither to issue a cease and desist letter or other warning nor to notify Hytera in Germany prior to commencing this legal action, suggesting that MSI was less interested in resolving any genuine dispute than raising Hytera's costs.

137. **July 2017 – Patent Infringement Litigation in Regional Court of Mannheim, Germany.** In July 2017, MSI filed a separate litigation in the Regional Court of Mannheim regarding a unique patent not yet asserted in the U.S. proceedings. There was no jurisdictional reason for bringing this additional suit in a separate German venue than where they had sued just two months earlier. Instead, MSI filed this additional litigation in a separate venue for the purposes of inflicting additional cost and burden on Hytera. Further, MSI chose not to issue a cease and desist letter or other warning that is typical or to notify Hytera in Germany prior to commencing this legal action, showing that MSI was not interested in resolving any dispute with Hytera but simply in raising Hytera's costs.

138. **July 2017 – Patent Infringement Litigation in Federal Court of Australia.** Later in July 2017, MSI asserted yet another patent infringement litigation in the Federal Court of Australia in New South Wales. Although MSI was required under Australian Federal Court rules to attempt to resolve the matter prior to filing, MSI made only a perfunctory attempt to notify



Hytera of its potential claims and to seek a resolution, settlement, or license without commencing litigation. Hytera received initial notice of the suit in Australia four days before MSI filed its case, so Hytera was not even given a realistic opportunity to respond. MSI once again filed this litigation for the purpose of abuse and to inflict additional cost on Hytera in order to defend this matter in a third jurisdiction, without any regard to the merit of the litigation itself. In particular, the Australian patent litigation once again includes the Australian registrations of the '869 and '991 patents, which Hytera contends are standard essential patents to the Relevant DMR Standards. MSI and Hytera have entered into a license agreement covering standard essential patents for DMR technologies, but MSI has denied that these two patent families are standard essential and has failed to include them under the terms of the agreed license or otherwise make a FRAND licensing offer.

139. In short, as part of its overall scheme to drive up Hytera's costs and inflict burden through the use of otherwise legal process, MSI has engaged in litigation in as many as six forums on top of multiple petition of U.S. government agencies, all within the last 18 months.

#### **Patent-Related Conduct**

140. **Standard Setting in the Digital Mobile Radio Industry.** The adoption of industry-agreed standards is essential for the digital mobile radio industry to function effectively. In a given system, all of the system's components (*e.g.*, base stations and hand held units) must seamlessly interface with each other. This means that a hand unit from one manufacturer works with a base station manufactured by another company. In the digital mobile radio industry, this is particularly important where certain wireless radio networks are dedicated to emergency, first-responders. Several standards development organizations ("SDOs") have been the forum for the development and adoption of standards related to digital mobile radio. Relevant to this

Complaint, the European Telecommunications Standards Institute (“ETSI”) is an SDO through which MSI combined with competitors and other industry participants to set the DMR standard. MSI’s coordination with competitors within ETSI was legitimate only to the extent that it committed ex ante to license its intellectual property (“IP”) on FRAND terms to any and all potential users anywhere in the world of the resulting DMR standard.

141. The ownership of relevant IP and related IP licensing practices are critical issues in SDOs’ consideration of standards proposals. If the coordination by competitors on the implementation of a standard requires the use of particular IP, such as a patent, the IP owner may acquire the ability to prevent, delay, or distort the development of technology implementing that standard and thereby undermine the purpose of the SDO.

142. In order to reduce the likelihood that implementers of their standards will be subject to abusive practices by patent holders, SDOs have adopted rules, policies, and procedures that address the disclosure and licensing of patents that SDO participants may assert in relation to the practice of the standard under consideration. These rules, policies, and/or procedures are set out in the intellectual property rights policies (“IPR policies”) of the SDOs.

143. Many IPR policies – including those at issue in this litigation – encourage or require participants to disclose on a timely basis the IPR, such as patents or patent applications that they believe are sufficiently relevant to standards under consideration. These disclosures permit the SDOs and their members to evaluate technologies with full knowledge of disclosed IPR that may affect the costs of implementing the standard.

144. IPR policies – including those at issue in this litigation – require participants claiming to own relevant patents to negotiate licenses for those patents with any implementer of the standard on FRAND terms. As their inclusion in the IPR policies of various SDOs suggests, such

commitments are crucial to the standards development process. They enable participants in standards development to craft technology standards with the expectation that an owner of any patented technology will be prevented from demanding unfair, unreasonable, or discriminatory licensing terms and thereby be prevented from keeping parties seeking to implement the standard from doing so or imposing undue costs or burdens on them.

145. Accordingly, SDOs typically require that their members declare whether they believe they hold patents necessary for compliance with a particular standard, and if so whether they are willing to license such patents on FRAND terms. Patents necessary to implement a particular standard are known as “essential patents” for the standard to which they relate.

146. **ETSI Obligations Undertaken by MSI.** MSI, through its subsidiary and/or affiliate Motorola Solutions (UK), is a current member of ETSI and, on information and belief, has been a member of ETSI at all times relevant to this Complaint.

147. MSI, through Motorola Solutions (UK), is and was a supporting ETSI member of the following ETSI standards related to DMR (collectively, the “Relevant DMR Standards”):

- Electromagnetic compatibility and Radio spectrum Matters (ERM);  
Digital Mobile Radio (DMR) Systems; Part 1: DMR Air Interface (AI)  
protocol, ETSI TS 102 361-1 standard (“ETSI TS 102 361-1 standard”).
- Electromagnetic compatibility and Radio spectrum Matters (ERM);  
Digital Mobile Radio (DMR) Systems; Part 2: DMR voice and generic  
services and facilities ETSI TS 102 361-2 standard (“ETSI TS 102 361-2  
standard”).

148. Both the ETSI TS 102 361-1 and ETSI TS 102 361-2 standards have gone through numerous versions over the time of their development. ETSI TS 102 361-1 was first published as

Version 1.1.1. in April 2005, and was most recently updated with its ninth version, version 2.4.1, in February 2016. ETSI TS 102 361-2 was first published as version 1.1.1. in April 2005, and was most recently updated with its seventh version, version 2.3.1, in February 2016.

149. At all times relevant to the revision and development of the Relevant DMR Standards, MSI was a member of ETSI and a contributing member and sponsor of the development of those standards.

150. Participants in the ETSI standard setting efforts, including MSI, in the course of the development of the above described DMR standards, are subject to the ETSI Intellectual Property Right Policy (“ETSI IPR Policy”). The ETSI IPR Policy (which has been revised slightly over the years) is presently contained at Annex 6 of the ETSI Rules of Procedures. Section 4.1 of the ETSI IPR Policy makes it clear that each participant in the ETSI standard setting process has a duty to use “reasonable endeavours” to disclose standard essential patents in connection with the development of any ETSI Standard:

4.1 Subject to Clause 4.2 below, each MEMBER shall use its reasonable endeavours, in particular during the development of a STANDARD or TECHNICAL SPECIFICATION where it participates, to inform ETSI of ESSENTIAL IPRs in a timely fashion. In particular, a MEMBER submitting a technical proposal for a STANDARD or TECHNICAL SPECIFICATION shall, on a bona fide basis, draw the attention of ETSI to any of that MEMBER's IPR which might be ESSENTIAL if that proposal is adopted.

151. Section 15.6 of the ETSI IPR Policy defines an “Essential IPR” as follows:

“ESSENTIAL” as applied to IPR means that it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, to make, sell, lease, otherwise

dispose of, repair, use or operate EQUIPMENT or METHODS which comply with a STANDARD without infringing that IPR. For the avoidance of doubt in exceptional cases where a STANDARD can only be implemented by technical solutions, all of which are infringements of IPRs, all such IPRs shall be considered ESSENTIAL.

152. Section 6.1 of the ETSI IPR Policy contains the commitment of every participant in the ETSI standard setting practice, including MSI, to license any identified standard essential patent on FRAND terms:

6.1 When an ESSENTIAL IPR relating to a particular STANDARD or TECHNICAL SPECIFICATION is brought to the attention of ETSI, the Director-General of ETSI shall immediately request the owner to give within three months an irrevocable undertaking in writing that it is prepared to grant irrevocable licenses on fair, reasonable and non-discriminatory (“FRAND”) terms and conditions under such IPR to at least the following extent:

MANUFACTURE, including the right to make or have made customized components and sub-systems to the licensee's own design for use in

MANUFACTURE;

sell, lease, or otherwise dispose of EQUIPMENT so MANUFACTURED; repair,

use, or operate EQUIPMENT; and

use METHODS.

153. MSI has agreed to the Essential IPR policy of ETSI and has agreed to license essential IPRs (patents) subject to the DMR standard (ETSI TS 102 361 standard) under FRAND terms, including in a standard essential patent license agreed to with Hytera. Indeed, on MSI’s “Standard-Based Licensing” website, MSI has publicly committed MSI to make its essential

patents available to prospective licensees on a FRAND basis, including patents related to the ETSI DMR Standards.

154. **MSI's Failure to Disclose SEPs and Subsequent Patent Litigation.** As described above, MSI has engaged in a global campaign of patent litigation against Hytera, including asserting claims for patent infringement based on at least two patents that are standard essential to the Relevant DMR Standards. These patents were not disclosed to ETSI in the course of MSI's participation in the DMR standard setting process, nor did MSI ever make a FRAND offer to Hytera to license these patents or offer to include the two patents under the terms of the agreed license agreement between Hytera and MSI. The two patents that are Essential Patents to the Relevant DMR Standards are:

- U.S. Patent 7,369,869, which was filed with the USPTO on July 26, 2004 and issued May 6, 2008. The '869 patent was published as US2006/0018292 on January 26, 2006.
- U.S. Patent 8,279,991, which was filed with the USPTO on December 9, 2008, issued October 2, 2012, and claims priority to a provisional application 61/102,770 on October 3, 2008. The '991 patent was published as US2010/0086092 on April 8, 2010.

155. As described above, the Relevant DMR Standards were in development as early as April 2005 and continued at least through 2016. On information and belief, MSI was aware of the pendency of its applications for the '869 and '991 patents throughout the development of the Relevant DMR Standards. Indeed, the '869 and '991 patents were issued during the pendency of both of the Relevant DMR Standards and MSI knew or reasonably should have known these

patents should have been disclosed in the ETSI standard development process for the Relevant DMR Standards.

156. As of April 2017, MSI maintains a list of the patents that MSI considers Essential IPRs for the Relevant DMR Standard, a list which as of October 2017 includes four patent families. The '869 and '991 patents are not listed as essential IPRs to the Relevant DMR Standards.

157. MSI should have listed the '869 and '991 patents as essential patents to the Relevant DMR Standards. In the pending patent litigation filed by MSI against Hytera, MSI alleges that Hytera's DMR products infringe both the '869 and '991 patents because the products use software and source code that implement one of the Relevant DMR Standards. In so doing, MSI has relied on portions of the Relevant DMR Standards as a basis for its claims of infringement for both the '991 and '869 patents.

158. Plaintiff's understanding is that, under MSI's interpretation of the relevant patent claims, to avoid infringement of the '869 and '991 patents would be to disable the accused features in the accused Hytera products, which would prevent Hytera from complying with the associated portion of the DMR standard.

159. At no time has MSI disclosed the '869 and '991 patents in connection with the ETSI Standard development process. In particular, MSI did not disclose either patent in connection with its participation in the development of the Relevant DMR Standards.

160. **Refusal to License SEPs to Hytera and Patent Litigation.** Because MSI failed to disclose the '869 and '991 patents in the course of the development of the Relevant DMR Standards, MSI breached its obligations under the ETSI IPR Policy to ETSI and Hytera as a participant in the ETSI standard development process. In particular, MSI failed to exercise its

“reasonable endeavours” as required by the ETSI IPR policy to disclose the ’869 and ’991 patents as Essential IPR in the course of a standard’s development.

161. Moreover, at no time did MSI make or offer to Hytera a license offer regarding the ’869 and ’991 patents as Essential IPR to the Relevant DMR Standards. Because MSI has failed to make a FRAND license offer to Hytera for the ’869 and ’991 patents as Essential IPR to the Relevant DMR Standards, MSI has breached its obligation to ETSI and to Hytera under the ETSI IPR Policy.

162. Instead of making any licensing offer to Hytera, MSI has brought suits in the United States, Australia, and Germany alleging infringement of either or both the ’869 and ’991 patents or their foreign counterparts in the United States, Australia, and Germany, which violates MSI’s obligations under the ETSI IPR Policy.

## **RELEVANT MARKETS**

### **Relevant Product Markets**

163. Based on information available to date, there are two relevant product markets: (1) the market for Mission-critical LMR Solutions with distinct sub markets for (a) public safety and emergency responder customers, and (b) utility and transportation customers; and (2) the market for Business-critical LMR Solutions for the private sector. The relevant geographic market for all of the relevant product markets is the United States. As used in this Complaint, LMR Solutions include hardware, software, and if requested by the customer, integration and maintenance services for two-way land-mobile radio communications.

164. MSI and the industry recognize these relevant product markets. Indeed, MSI has stated in its annual report to investors and filed with regulators that it “compete[s]” in these two “core markets”: (1) a “mission-critical communications customer base that spans many layers of



governments, public safety, and first responders,” and (2) “commercial and industrial customers in a number of key verticals.” MSI states that there are key traditional “public safety and commercial markets” that it sells into and that there are also other markets, which it describes as “verticals,” that include transportation and utilities.

165. MSI designs its products to address different customer requirements consistent with these markets. These differences include what MSI describes in its annual report to shareholders as “tailored form factors” and “unique feature sets.” Hytera and other manufacturers also sell products tailored to meet the requirements of different customers.

166. These MSI statements to shareholders of the markets in which it competes are helpful in framing the relevant markets at issue in this Complaint.

167. **Mission-critical LMR Solutions.** The first product market relevant to this case is the market for Mission-critical LMR Solutions. The characteristics of Mission-critical LMR Solutions are redundancy, cybersecurity, scalability, and interoperability with public safety networks. These systems must be designed to maintain viability in an emergency situation. Customers that demand these types of solutions have some common characteristics: they offer essential services (first responder, public safety, subway, power, water) that must continue to function through all emergency situations, and they need communications equipment that will allow them to reach that goal. They are also often subject to regulatory requirements (*e.g.*, from the FCC) regarding data security, privacy, and interoperability. Further, because of the requirement for consistent operation, and viability within an emergency situation, most Mission-critical LMR Solutions include hardware (terminals, systems), accompanying software, as well as long-term maintenance and service contracts with the LMR provider.

168. Within the market for Mission-critical LMR Solutions, there are two separate and distinct submarkets: (1) public safety and emergency responder customers; and (2) utility and transportation customers.

169. Within the public safety and emergency responder submarket, LMR solutions that fail to offer the required level of redundancy, security, and interoperability between public safety agencies are not reasonable substitutes for LMR solutions that do provide for those requirements. Within the United States, other LMR solutions have not generally been considered by the industry or public safety customers to be within this relevant market. P25 is the dominant technology sold in the United States to public safety customers to satisfy these purposes. DMR and TETRA would be viable options in the absence of MSI's conduct.

170. LMR solutions for public safety have specific spectrum on the 700MHz and 800 MHz band, as defined by the FCC. Equipment designed for public safety applications in the United States will be specified for 700/800MHz use.

171. Because of the specialized, mission-critical, nature of these LMR solutions, they are sometimes not bid through dealers, but directly from manufacturers so as to ensure an appropriate, customized solution is available. The accompanying service and maintenance work will also be bid directly by the LMR manufacturer, but will often be fulfilled or performed by an independent LMR dealer.

172. Industry participants and customer organizations recognize the unique benefits of Mission-critical LMR Solutions to operators in the public safety arena. Through P25, APCO is committed to supporting public safety organizations whose goal is to maintain mission-critical communications and interoperable LMR equipment and systems to better respond to the needs of their communities. According to APCO, "To accomplish the primary goal of having

interoperable LMR equipment, users and manufacturers participating in the P25 process develop voluntary, consensus communications standards under the auspices of American National Standards Institute (ANSI)-accredited Telecommunications Industry Association (TIA).” According to MSI, “a P25 digital LMR system delivers the redundancy, reliability, and ‘always on’ availability” to better serve mission-critical communications.

173. The substantial price differences between Mission-critical LMR Solutions appropriate for public safety and emergency responder applications and those that are not reinforces the existence of a separate market for Mission-critical LMR Solutions. For example, in 2016, an average P25-compliant handset offered to a public safety customer in the United States cost approximately \$5,000-6,000 (for an APX 6000 model), while the cost of typical, professional-tier digital/DMR handset cost approximately \$1,000-1,200.

174. Given a small but substantial, non-transitory increase in the price of an appropriate Mission-critical LMR Solution for public safety and emergency responder customers within the relevant geographic market, actual, and prospective customers would not substitute to a different technology without the necessary characteristics.

175. Within the submarket for utility and transportation customers (sometimes referred to more broadly as infrastructure customers), Mission-critical LMR Solutions need to offer redundancy, security, and scalability, while the need for interoperability (for instance, with a local public safety agency) can vary from customer to customer. Customers in this submarket will include power, water, and electrical utilities, as well as a range of transportation customers managing bus systems, train and subway lines, and airport or other transit facilities. In general, while utility and transportation customers share a lot of similarities to public safety customers, they also have characteristics of private customers. That is, they have to take the day-to-day

demands and cost-sensitivity of their customers into account and, generally, are considered to be more cost-conscious than a public safety or emergency response agency.

176. Because of the combination of needs particular to utility and transportation customers, the range of LMR technologies sold into this submarket can be varied. Utility and transportation customers would generally seek what are considered “high-end” technologies, but are more cost sensitive in their purchasing than public safety and emergency responder customers. The most commonly purchased technologies that meet these requirements would be DMR, TETRA, and for very limited applications, dPMR/NXDN.

177. Given a small but substantial, non-transitory increase in the price of an appropriate Mission-critical LMR Solution for utility and transportation customers within a relevant geographic market, actual and prospective customers would not substitute to a different technology without the necessary characteristics.

178. **Business-critical LMR Solutions.** The market relevant to this case is the market for Business-critical LMR Solutions for the private sector. These customers demand LMR solutions that offer a combination of scalability, cybersecurity, and customizability, without necessarily requiring or needing interoperability with existing public safety radio networks. An important characteristic of these business-critical customers is cost sensitivity compared to Mission-critical LMR Solutions; these are lower-cost radios sold for professional (not consumer) uses. A typical customer in this category might be an operations team at a commercial warehouse, a security or service team at a casino, or supervisors on a construction site. This market may also contain some smaller, cost-sensitive transportation, utility, or even public safety customers (*e.g.*, a small rural police force with little need for P25 level costs or features).

179. The primary technology being utilized in this market will be DMR, with a niche of customers that need and demand dPMR/NXDN solutions. LMR solutions that fail to offer the appropriate combination of cost-effectiveness, reliability, scalability, and security necessary for the private sector are not reasonable substitutes for LMR solutions that do provide for those requirements. P25 would not be considered an appropriate technological solution for these customers. An increasing number of new users recognize the benefits of using LMR technologies in the private sector.

180. A sale to a typical Business-critical LMR Solution customer will be smaller in scale, in terms of handsets and system size, than a Mission-critical LMR Solution customer. It typically would not have the same type of lengthy, and costly, service contracts attendant to a sale made to a public safety or emergency responder customer. Most sales of Business-critical LMR Solutions will be made through independent dealer channels rather than direct sales.

181. Given a small but substantial, non-transitory increase in the price of an appropriate Business-critical LMR Solution for a commercial or industrial customer within a relevant geographic market, actual and prospective customers would not substitute to a different technology without the necessary characteristics.

182. **The Relevant Markets Exclude Other Modes of Communications.** As described extensively above, the customers purchasing LMR have unique requirements. Other modes of communication are not alternatives for LMR products designed for and sold to public safety, infrastructure, and commercial customers. Landline phones, for example, do not provide mobility. Analogue radios lack the clarity of digital and are less efficient in their use of spectrum. Analogue is also distinct in that it does not offer text messaging and other applications and

functionality that is possible with digital. Similarly cell phone service is not a substitute for the relevant products, as MSI has itself explained in its marketing material.

183. Similarly cell phone service is not a substitute for the relevant products. The differences noted above are well known in the industry. One important differences include safety. For example, one dealer that operates from California to Washington and that exclusively markets MSI product explains that it tested the use of two-way radios and cell phones and found that the former are safer to use while driving “due to the simple, one-button push operation of a radio.” These devices are intended to be used for many on-the-road situations; cell phones are not. Further, the Federal Motor Carrier Safety Administration in 2012 published rules restricting the use of mobile phones for voice communication, rules that do not apply to LMRs. According to other MSI dealers, key functionality found in LMR products that distinguishes two-way radios from cell phones include better network security, improved call coverage and quality, enhanced noise cancellation technology, materially greater durability, more practical user interface, easier one-to-many communication (*e.g.*, talking to a group at the push of a button), tailoring for emergency situations (*e.g.*, constant communication and man-down functionality), cost savings, tailoring for practical requirements of organizational communications, and a battery life that is twice as long as a cell phone.

#### **Relevant Geographic Market**

184. The relevant geographic market is the United States. MSI substantially forecloses competition in the United States. MSI has erected and taken advantage of barriers to competition that are not present outside the United States.

185. MSI is able to charge monopoly prices in the United States unconstrained by competitive forces; in contrast, MSI’s pricing is competitively constrained outside the United

States. MSI can charge U.S. LMR purchasers an unconstrained monopoly price because of differences in the geographic markets in which it sells its product. Competition outside the United States that might drive down pricing stops at the border due to jurisdiction-specific regulations, such as those enforced by the FCC.

186. U.S. customers pay a multiple of what customers outside the United States pay for what is essentially the same product.

187. For instance, MSI prices its handsets in the United Kingdom at a fraction of what MSI charges customers in the United States. The list price for an MSI P25-compliant radio sold last year to the City of Chandler, Arizona was \$6,978.00. MSI offered the City of Chandler a “discounted” rate of \$5,290. MSI’s list price is nearly seven (7) times the retail price for a comparable MSI TETRA product sold in the United Kingdom. Even after discounting its list price to \$5,290, MSI charged the City of Chandler nearly five (5) times what a customer in the UK could pay at retail for a comparable product. For example, MSI offers a comparable product using TETRA – what MSI describes as “one of the most advanced TETRA portable radios in the world” that sells in the UK at retail for less than \$1,100 in equivalent U.S. dollars.

188. Because retailers add a margin on top of the price charged to them by MSI, this price differential understates the amount that MSI is able to overcharge public safety customers in the United States, and ultimately the U.S. taxpayer.

189. Purchasers in the United States are harmed by MSI’s monopoly, with U.S. taxpayers and customers effectively subsidizing MSI’s \$560 million in profits. The difference is sizable: MSI “handset sales in the U.S. carry an 83.6% gross margin;” MSI’s handset “device sales in Europe are at 9%,” according to an investment analyst. Given the examples above where MSI

charges five-to-seven times within the United States what it can charge outside the United States, this analysis comes as no surprise.

190. The difference is competition. Customers in the United States are not paying an elevated price for any better product or service. Regulations, standards, patent laws, and the market structure all combine to make for a geographic market limited to the United States, one that MSI has successfully monopolized through the conduct described herein, preventing the competition that MSI customers outside the United States benefit from.

191. Regulatory requirements vary from country to country and each country adopts laws and rules that regulate the airwaves within its boundaries. The United States is no exception. The United States and Canada, for example, have chosen to allocate their radio spectrum differently from one another, as well as from other countries.

192. The FCC is delegated responsibility for regulating and enforcing the nation's laws with respect to the use of radio spectrum over which two-way radios operate. The FCC, as noted above, has allocated certain spectrum for specific uses, such as spectrum on the 700MHz and 800 MHz bands to public safety.

193. FCC regulations also dictate what product standards or technologies can be used for a given spectrum. For example, the FCC has rules requiring analog interoperability in the NPSPAC 800 MHz spectrum (806-809/851-854 MHz) and P25 interoperability in the narrowband 700 MHz spectrum (764-804 MHz).

194. FCC requirements do not apply outside the United States. On information and belief, as described above, MSI has had a hand in defining these rules in order to protect its monopoly in this country.



195. A radio that is sold and operated in the United States must be designed to operate according to FCC requirements. A two-way radio that is designed to operate using spectrum permitted by another country for public safety or private sector use cannot be used in the United States if that spectrum has been allocated by the FCC for other purposes. A customer cannot use a radio outside the country of its purchase unless it conforms to U.S. and FCC-approved standards. The consequences of using a radio designed to operate on spectrum permitted in one country but not in the United States can result in an investigation or fines by the FCC.

196. The FCC also regulates other aspects of the radio. The power output, antenna size, and other technical characteristics of the system are regulated by FCC regulations that affect what may be sold and operated in the United States. Further, two-way radios must be certified by the FCC prior to their sale in the United States. Indeed, manufacturers of two-way radios must obtain an FCC Equipment Authorization prior to marketing or importing a product into the United States. A product's compliance with one country's certification requirements does not make the product compliant with U.S. regulatory requirements and the product may not be sold in the United States without undergoing separate compliance testing and certification by the FCC. A vendor may not even demonstrate product in the United States if it lacks appropriate FCC certifications.

197. Other considerations also affect competition in the sale of two-way radios, such that customers in the United States do not benefit from competition in the sale of products outside the United States. Customers in this country look to dealers and suppliers who are capable of supplying product and services, including maintenance and warranty repairs, locally. Consequently, MSI and Hytera, for example, both maintain offices and sales and back-office staff in the United States in order to support sales by customers in the United States. The

independent dealers referred to in this Complaint all maintain offices and staff in the United States to support sales to U.S. customers.

198. The United States is also notable for the dominance of the P25 standard for public safety and first responder customers. Most countries in the world do not use P25, preferring instead the more efficient TETRA technology standard. P25 was promoted and adopted by APCO, an association of U.S. police and other first responders. As further described above, the P25 standard was designed for first responders in the United States. Even as MSI actively promoted and sold TETRA product outside the United States – becoming, in MSI’s words “the world’s largest supplier of TETRA solutions” – MSI has said that TETRA is not suitable for sale to public safety customers (or any entity using the public safety bands in the United States) because it lacks interoperability with P25. However, as described above, PowerTrunk has invested the time and money to develop a unique, dual-mode, P25 compatible product that moots any such concerns.

199. Today, MSI-lobbied-for rules and regulations still require the use of P25 for 700MHz. Thus, in order to sell a TETRA product capable of operating on this band, a manufacturer has to design a dual-mode device capable of operating both TETRA and P25. This requirement is unique to the United States.

200. Patent laws also limit the relevant market to the United States. U.S. patent laws provide for market exclusivity within the country’s borders. A patent holder may seek to block the importation and sale into the United States of product that infringes a valid patent.

201. MSI is no stranger to using the patent laws for the purpose of limiting competition to within the United States. MSI has taken various actions over time to block entry into the United States.

202. MSI has sought to block the importation of Hytera product through sham litigation in the ITC and federal court, as alleged herein. This sham conduct includes asserting patent protection from the importation of Hytera's DMR products sold for private sector use. Because this functionality is essential to operating under the DMR standard specifications, United States patents that cover the DMR standard may preclude the importation and sale of all such radios, according to the position taken by MSI.

203. In sum, the relevant geographic market is limited to the United States and MSI's actions would not be possible but for the fact that competition in the sale of two-way radios is limited by this nation's boundaries.

#### **Relevant Market Participants**

204. MSI's 2016 annual report establishes the competition faced by MSI globally for LMR solutions: Hytera (and Sepura), Kenwood, Airbus, and Harris. MSI is the dominant provider of LMR solutions within the United States. Further, MSI announced its intent to acquire the LMR assets of Airbus. The status of that acquisition is unclear, but in any event, Airbus is not a competitor in the relevant markets here. MSI's own statement of the competitive landscape is clear evidence of a highly concentrated market. When one considers that each of its competitors has a *de minimis* share of the relevant markets compared to MSI, the concentrated nature of the market and MSI's monopoly power is even more compelling.

#### **MSI's MONOPOLY POWER**

205. By virtue of MSI's high market share and barriers to entry in the relevant market and switching costs, MSI has, and at all relevant times had, monopoly power, *i.e.*, the power to control prices and/or exclude competition.

206. MSI is the dominant provider of Mission-critical LMR Solutions in the United States. One industry analyst has described MSI's public safety market position as a moat by which MSI is able to exclude competition, stating:

***Significant market share is a large competitive moat***

*Since the inception of land mobile radio in the 1930s, MSI has built a business that is dominant in the government and public safety market. ValueAct estimates MSI has 75% of the land mobile radio market. Back in August 2011, Morgan Stanley analysts estimated MSI had a 75–85% share in North America and 35–40% internationally. This market position is large competitive moat for MSI and has effectively prevented competitors from gaining significant share for several reasons.*

This quote from 2013 remains particularly apt today in 2017. In the last four years, MSI's market position remains the same; it is ever dominant and able to exclude competitors for public safety contracts.

207. By revenue, MSI controlled no less than 75% of the submarket for Mission-critical LMR Solutions sold to public safety and emergency responder customers. On information and belief, on any other measure (unit sales, profits, etc.) MSI would be equally dominant. MSI's monopoly share is widely reported. For example, MSI's board member Jeff Ubben reportedly "said the market share is about 75%."

208. MSI is also the dominant provider of Mission-critical LMR Solutions to transportation and utility customers within the United States, with a market share of more than 65% by revenue.

209. MSI is the dominant provider of Business-critical LMR Solutions for the private sector in the United States. MSI controls more than 80% of the market by revenue for Business-critical LMR Solutions for the private sector.

210. However, on information and belief, MSI could also be shown to be dominant in all relevant markets by other measures, such as existing installed base or users or unit sales (including terminals, base stations and repeaters).

211. In addition to MSI's high market share, the relevant markets are characterized by significant barriers to entry. Initially, developing a new LMR product solution requires millions of dollars in capital investment and research and development, in addition to significant regulatory expenditures. These sunk costs inhibit entry and expansion in the relevant markets.

212. Any new, non-certified LMR product to be imported or sold in the United States needs regulatory licensing from the FCC, as described above.

213. The relevant markets are also characterized by a significant barrier to entry in the form of switching costs. Sales of LMR solutions are particularly sticky, as once a customer makes a decision to install a certain technology, there is a system infrastructure installed that includes base stations and repeaters to connect user handsets. Switching is difficult for two reasons: (1) interoperability – if a customer wishes to switch to alternative handset technology but maintain its same installed infrastructure, there may be questions of interoperability or loss of functions from using a different handset; and (2) installation costs – once a customer installs an LMR system, it takes a significant improvement in price or quality to induce the customer to change its system to a competitor's system. The result is that once a customer chooses a technological solution (and thus, a provider of those solutions) there is substantial "stickiness" in that choice.

214. Relatedly, the relevant markets are characterized by direct and indirect network effects, which can reinforce a customer's "stickiness" to a technological solution because an individual customer's use of that technology is attached to the use of another resulting service. For example, the network effects of LMR solutions include the growth of service providers, accessory providers, software providers, and other consultants specifically tailored to serve a dominant LMR solution, such as P25 for public safety customers. As an alternative technology seeks to enter one of the relevant markets – such as TETRA in the U.S. market for Mission-critical LMR Solutions for public safety – and consequently seeks to take advantage of any network effects of a predominant technology, it faces the daunting task of coordinating the behavior of large numbers of service providers or evolving into an interoperable or complementary technology. Therefore, even if a new LMR technology offers a superior alternative, the network effects inherent to an existing and adopted LMR network serve as a barrier to competition because of a customer's reluctance to choose an incompatible technology with fewer supporting service providers available. As a result, the provider of an incumbent LMR technology is able to delay the emergence of any new technologies and insulate itself from competition.

215. This "stickiness" and these ties formed by network effects result in significant barriers to entry in the relevant markets and reinforce MSI's monopoly power over its current customers. New entrants have to expend significant resources to overcome these barriers, underscoring the gravity of the effect of MSI's exclusionary conduct.

216. Other barriers to entry include the role of dealers, reputation, and patents, as alleged above. Without access to dealers, for example, a new entrant is not able to effectively compete.

217. Direct evidence of MSI's monopoly power includes its ability to control prices and raise prices above those that would be charged in a competitive market.

218. MSI's monopoly power is durable. It has dominated the relevant markets for years. MSI's market share in the relevant markets has been stable, as MSI has maintained monopoly power in the relevant markets for years. In particular, Plaintiff believes that MSI has held onto 80% or more of DMR-based LMR products in the United States for at least the past three years. MSI's market position is unlikely to change as long as MSI persists in its scheme to maintain its monopoly.

219. Entry has not impacted MSI's market position or affected how MSI competes. Hytera's entry, for example, did not lead to competitive pricing by MSI. Competitors are not able to restrain MSI. To the contrary, competitors have exited and/or have reduced their investment in the face of MSI's durable monopoly. The company Tait, for example, used to compete but has since exited the market as a direct competitor. On information and belief, Tait only participates indirectly in the U.S. by supplying product to Harris. Plaintiff believes that Kenwood makes some DMR product, but has redirected its investment to focus on non-DMR products.

220. The history of TETRA-based sales in the U.S. provides yet another example of MSI's durable monopoly power. Plaintiff believes that only one company – Sepura and its PowerTrunk subsidiary – has ever been successful selling TETRA into the United States and then its competitive impact was severely limited as a result of MSI's conduct. Ultimately, Sepura exited as an independent vendor and was acquired by Hytera.

221. Notably, MSI's pricing is not and has not been restrained as a result of competition. MSI's prices are well above the competition and have remained that way. Plaintiff understands, for example, that MSI's list prices are well above Hytera's list prices for like products. Plaintiff

believes that the spread between what MSI charges the dealer and MSI's suggested resale price (its published MSRP) has not changed in response to competition from Hytera. Dealers tell Hytera they prefer Hytera pricing but cannot afford to drop MSI in favor of Hytera because of MSI's durable monopoly power over them.

### **ANTITRUST INJURY**

222. During the Class Period, Plaintiff and Class Members purchased LMR Solutions directly from MSI. As a result of MSI's anticompetitive conduct, Plaintiff and Class Members paid more for LMR Solutions than they would have absent that conduct, and thus suffered substantial damages. This is a cognizable antitrust injury and constitutes harm to competition under the federal antitrust laws.

223. Because MSI's unlawful conduct has successfully restrained competition in the market, Plaintiff and Class Members have sustained, and continue to sustain, significant losses in the form of artificially inflated prices paid to MSI. The full amount of such damages will be calculated after discovery and upon proof at trial.

224. MSI has a history of squelching competition. When other vendors in past years made an effort to aggressively compete head on with MSI, MSI responded with tactics similar to what MSI is using today against Hytera, as alleged above. MSI's conduct then and now has succeeded in eliminating effective competition such that it continues to maintain a stranglehold on dealers and the ultimate user.

225. MSI sales agreements and service contracts effectively cover more than 75% of the market for Mission-critical LMR Solutions for public safety and emergency responder customers. As detailed above, through these public safety sector sales and service contracts as well as *de facto* exclusivity enforced through financial incentives and explicit threats of



termination, MSI is able to exert pressure on dealers to effectively prevent dealers from doing business with MSI and from carrying competing products. The resulting pressure on nominally independent dealers has led to MSI's sustained dominance in the market for Business-critical LMR Solutions for commercial and industrial customers, effectively foreclosing the 80% of that market held by MSI.

226. By foreclosing competitors, MSI has been able to keep the supply of Mission-critical LMR Solutions for public safety, emergency responder, utility, and transportation customers, as well as Business-critical LMR Solutions for commercial and industrial customers below competitive levels, thus reducing overall market output below what would have prevailed absent MSI's anticompetitive agreements and conduct. By reducing overall market output and eliminating competitors, MSI has been able to keep its prices above levels that would have prevailed in a competitive market.

227. The American customer and taxpayer suffers from high prices that result from the elimination of competition, as described above, but also suffers from reduced innovation.

228. Innovation is stalled because competitors are unwilling to invest. A New York official famously testified to Congress that a kid on the streets of New York has more technology packed into his smartphone than can be found in a radio sold into the public safety market. As long as MSI continues to monopolize the relevant markets through a monopolistic scheme that locks up the market, competitors have little incentive to innovate as the mobile phone industry has.

229. No procompetitive justification or effects outweigh the anticompetitive effects of MSI's agreements and exclusionary conduct, abusive serial petitioning and litigation, nor their unlawful patent-related conduct. For example, requiring dealers to refrain from doing business

with competing LMR manufacturers does not serve any interest in protecting intellectual property or trade secrets: MSI's demanding exclusivity from its dealers under threat of termination is unique within the industry, emphasizing the anticompetitive nature of its conduct. To Plaintiff's knowledge, no other LMR manufacturer makes such demands of exclusivity of its independent dealers, showing that within the context of independent LMR dealers, there is no legitimate economic reason to require exclusivity.

**FIRST COUNT**  
**Violation of 15 U.S.C. § 2**  
**Monopolization**

230. Plaintiff re-alleges and incorporates by reference each of the allegations set forth above.

231. MSI has monopolized the relevant markets in violation of Section 2 of the Sherman Act.

232. At all relevant times, MSI possessed monopoly power in the relevant markets, as demonstrated by MSI's high market share, barriers to entry, MSI's actual exclusion of competition, and its ability to charge supracompetitive prices in the relevant markets.

233. Through the scheme described above, and other conduct likely to be revealed in discovery, MSI has willfully and unlawfully maintained and enhanced its monopoly power. MSI's scheme constitutes exclusionary conduct within the meaning of Section 2 of the Sherman Act.

234. MSI's scheme has suppressed competition and produced anticompetitive effects in the relevant market, including causing Plaintiff and Class Members antitrust injury and damages.

235. MSI's conduct has no procompetitive benefit or justification. The anticompetitive effects of its behavior outweigh any alleged procompetitive justifications.

236. As a result of MSI's conduct, and the harm to competition caused by that conduct, Plaintiff and Class Members have suffered substantial injuries to their business and property in an amount to be proven at trial and automatically trebled, as provided by 15 U.S.C. § 15.

237. Plaintiff and Class Members also entitled to recover from MSI the costs of suit, including reasonable attorneys' fees, as provided by 15 U.S.C. § 15.

**SECOND COUNT**  
**Violation of 15 U.S.C. § 2**  
**Attempted Monopolization**

238. Plaintiff re-alleges and incorporates by reference each of the allegations set forth above.

239. As alleged above, MSI has attempted to monopolize the relevant markets in violation of Section 2 of the Sherman Act.

240. MSI possesses substantial market power in the relevant markets, as demonstrated by MSI's high market share, MSI's actual exclusion of competition, and its ability to charge supracompetitive prices in the relevant markets.

241. MSI has been implementing the anticompetitive scheme set forth above, and other conduct likely to be revealed in discovery, with the specific intent to monopolize the relevant markets. MSI's scheme constitutes exclusionary conduct, within the meaning of Section 2 of the Sherman Act.

242. There is a dangerous probability that MSI will succeed in unlawfully extending its monopoly in the relevant markets through its anticompetitive scheme.

243. MSI's scheme has suppressed competition and has produced anticompetitive effects in the relevant markets, including Plaintiff's and Class Members' antitrust injury and damages.

244. MSI's conduct has no procompetitive benefit or justification. The anticompetitive effects of its behavior outweigh any alleged procompetitive justifications.

245. As a result of MSI's conduct, and the harm to competition caused by that conduct, Plaintiff and Class Members have suffered substantial and continuing injuries to their business and property in an amount to be proven at trial and automatically trebled, as provided by 15 U.S.C. § 15.

246. Plaintiff and Class Members are also entitled to recover from MSI the costs of suit, including reasonable attorneys' fees, as provided by 15 U.S.C. § 15.

**THIRD COUNT**  
**Violation of 15 U.S.C. § 1**  
**Agreements in Restraint of Trade**

247. Plaintiff re-alleges and incorporates by reference each of the allegations set forth above.

248. MSI possesses substantial market power in the relevant markets, as demonstrated by MSI's high market share, barriers to entry, MSI's actual exclusion of competition, and its ability to charge supracompetitive prices in the relevant markets described above.

249. As alleged above, MSI has entered into agreements with dealers with the purpose and effect of unreasonably restraining trade and commerce in the relevant markets.

250. MSI's exclusionary contracts described above constitute unlawful agreements, contracts, and concerted activity that unreasonably restrain trade in the relevant markets in violation of Section 1 of the Sherman Act.

251. MSI's exclusionary contracts have foreclosed a substantial share of competitors and had anticompetitive effects in the relevant markets.

252. MSI's exclusionary contracts have no procompetitive benefit or justification. The anticompetitive effects of its exclusionary contracts outweigh any purported procompetitive justifications.

253. As a result of MSI's exclusionary contracts, and the harm to competition caused by those contracts, Plaintiff and Class Members have suffered substantial injuries to its business and property in an amount to be proven at trial and automatically trebled, as provided by 15 U.S.C. § 15.

254. Plaintiff and Class Members are also entitled to recover from MSI the costs of suit, including reasonable attorneys' fees, as provided by 15 U.S.C. § 15.

WHEREFORE, Plaintiff and Class Members demand judgment as follows:

A. Certification of the action as a Class Action pursuant to Federal Rule of Civil Procedure 23, and appointment of Plaintiff as Class Representative and its counsel of record as Class Counsel;

B. Permanent injunctive relief that enjoins MSI from violating the antitrust laws and requires MSI to take affirmative steps to dissipate the effects of its violations;

C. That acts alleged herein be adjudged and decreed to be unlawful restraints of trade in violation of the Sherman Act, 15 U.S.C. § 1 *et seq.*;

D. A judgment against MSI for the damages sustained by Plaintiff and the Class defined herein, and for any additional damages, penalties, and other monetary relief provided by applicable law, including treble damages;

E. By awarding Plaintiff and Class Members pre-judgment and post-judgment interest as provided by law, and that such interest be awarded at the highest legal rate from and after the date of service of the Complaint in this action;

- F. The costs of this suit, including reasonable attorney fees; and
- G. Such other and further relief as the Court deems just and proper.

**JURY TRIAL DEMANDED**

Plaintiff, on behalf of itself and others similarly situated, hereby requests a jury trial, pursuant to Federal Rule of Civil Procedure 38, on any and all claims so triable.

**RULE 11.2 CERTIFICATION**

We hereby certify that, to the best of our knowledge, the matter in controversy is not the subject of any action pending in any court or of any arbitration or administrative proceeding.

Dated: December 22, 2017

Respectfully submitted,

/s/ James E. Cecchi  
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